DOCKET FILE COPY ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Revision of the Commission's Rules	)	
To Ensure Compatibility with	)	CC Docket No. 94-102
Enhanced 911 Emergency	)	
Calling Systems	)	

To: Chief, Wireless Telecommunications Bureau

QUARTERLY UPDATE TO REQUEST FOR WAIVER OF SECTION 20.18(c)

Celulares Telefonica ("CT"), by its attorneys, hereby files a quarterly update to its request for rule waiver ("waiver") of Section 20.18(c) of the Commission's Rules, pursuant to the FCC's Order released on November 13, 1998.[1] On December 28, 1998, CT filed a timely petition for waiver of Section 20.18(c) the Commission's rules regarding the transmission of 911 calls made from TTY devices using digital wireless systems. The Commission granted CT a temporary waiver of Section 20.18(c), which went into effect on January 1, 1999.[2] Pursuant to the FCC's November 13, 1998 Order, CT hereby files an update to show what advances have been made in the development of commercially available equipment, and seeks the continued extension of its waiver. In support thereof, the following is respectfully shown:

CT intends to make TTY capability available over its digital cellular system as soon as the necessary equipment is commercially available and installed. Once devices capable of transmitting TTY information over digital cellular networks have been developed, tested, and

---

[1] Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Order, 14 FCC Rcd 694, 696 (¶11)(Wir. Tel. Bur. 1998).

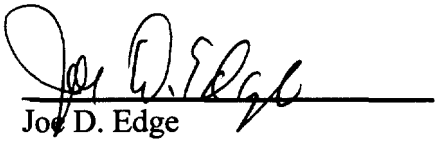
[2] In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Order, 14 FCC Rcd 1700, 1701 (¶4)(1998).

become commercially available under reasonable terms, CT will be able to provide a timetable for installation.

CT submits that questions relating to the specifications of equipment that is being developed to provide TTY-compatible service are beyond the scope of information which CT can provide itself. Such questions are more appropriately addressed by CT's equipment vendor because the equipment vendor, and not CT, is directly involved in developing compliant equipment. See Exhibit A.

As evidenced by Exhibit A, Ericson continues to work on development equipment that is compliant with the requirements in Section 20.18(c) of the Commission's rules. Until compliance can be achieved, CT will request updated information from its equipment vendor regarding progress on development of compliant equipment and will submit additional updates to extend this waiver request. CT reaffirms that as soon as compliant equipment is commercially available from its equipment vendor, CT intends to satisfy its obligations under Section 20.18(c) of the Commission's rules.

Respectfully submitted,



Joe D. Edge
Timothy R. Hughes
DRINKER BIDDLE & REATH LLP
1500 K Street, N.W.
Suite 1100
Washington, D.C. 20005
(202) 842-8800

Attorneys for
CELULARES TELEFONICA

December 30, 1999

ERICSSON

Attending to this matter name telephone
EPR/RT Alexis Torres

Date
1999-12-22
Your Date

EPRAT038
Your Reference

Eng. Angel Velez
Celulares Telefonica

E911 TTY Terminals

Dear Mr. Velez,

The Ericsson position regarding E911 for TTY terminals is the following:

Ericsson proposes a new modem standard that can be used for reliable in-band transmission of TTY/TDD signals via the speech channel of all digital cellular phone systems. The robustness is achieved by using a Forward Error Correction (FEC) that adds redundancy to the transmitted bitstream. Furthermore, an interleave is applied, which spreads each TTY/TDD character over several adjacent speech frames. This allows the receiver to recover bits that have been lost due to fading on the radio channel. The modem standard can be applied to all speech coding standards and all mobile phone systems.
The Ericsson solution offers several options for implementation and incorporation of this new modem standard:

- The first option is to incorporate the function in the typical interface cable used to connect the TTY and mobile phone. This built-in accessory performs the transformation between conventional and new TTY/TDD signals. In this case, the user would be able to use his existing TTY/TDD equipment together with an existing cellular phone.

- A second option is to integrate this function into new mobile phones. This would allow a very inexpensive implementation while reducing the detection and regeneration steps sense the signal processing, which is required for generating and detecting the modem signals, could be performed by the mobile's DSP.

- Another option to consider is to integrate the function in the subscriber's TTY/TDD device, making it into a more flexible terminal that supports both modem standards, conventional Baudot code as well as the new modem signals. This flexible TTY/TDD device might be implemented on standard hardware like a lap top computer. This solution offers highest flexibility (since the lap top computer can be used also for other applications) and low implementation costs (due to pure software development using standard hardware).

The Ericsson modem tone solution has the advantage that no existing mobile communication standards have to be modified and the network infrastructure can remain unchanged. The mobile network operator has to provide only a server that does a transformation between the new modem signals and conventional TTY/TDD Baudot code, in order to guarantee compatibility with existing TTY/TDD devices that are connected to PSTN (public switched telephone network) telephones. This network server is required only for an intermediate period, until all users are able to use the new TTY/TDD standard. The routing for such calls from a mobile TTY/TDD device to a TTY/TDD device connected to the PSTN is depicted in Figure 1. The installation of a single server within the network requires a lower implementation cost when compared to the modification of all existing transcoder units. For the subscriber, this solution offers a much higher flexibility. The new modem standard allows the implementation of higher transmission rates of e.g. 500 bit/s. This offers the possibility to introduce new services, such as the transmission of graphical data or file transfer. The increased transmission rate also allows a more natural communication between TTY/TDD users, because TTY/TDD characters can be transmitted as fast as the users can type. This is an advantage especially for experienced users, who are no longer restricted to the slow transmission rate of conventional TTY/TDD devices, which is about 6–7 characters per second.

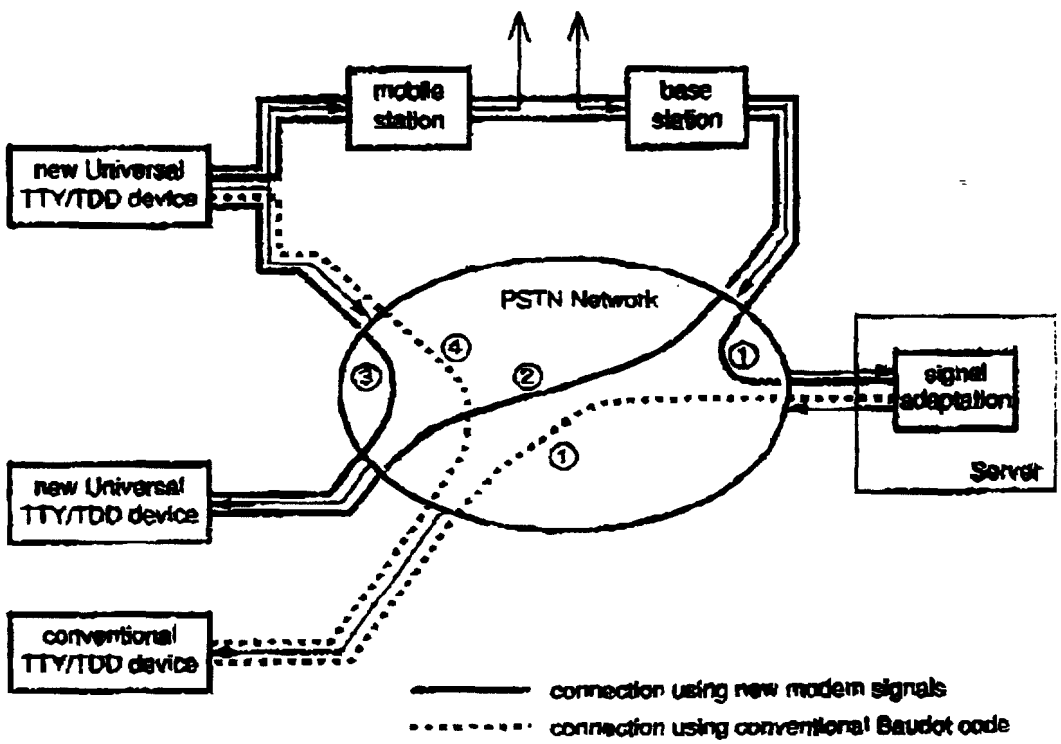


Figure 1: Possible connections with the new Universal TTY/TDD standard according to Ericsson's Modem Tone solution:

1. Connection to a conventional TTY/TDD device via a mobile using a server
2. Connection to a new TTY/TDD device via a mobile
3. Connection to a new TTY/TDD device via the PSTN
4. Connection to a conventional TTY/TDD device via the PSTN.

There is no commercial equipment available at this moment. A consensus needs to be established between the people involved in the TTY forum before begins the production of the commercial units.

Let me know if you need any other information.

Sincerely,

Alexis Torres
Local Product Manager
Ericsson Caribbean